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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/888,641

06/26/2001

Hiroyuki Nitta

500.40285X00

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06/01/2005

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EXAMINER

LESPERANCE, JEAN E

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,641

Applicant(s)

NITTA ET AL.

Examiner

Jean E Lesperance

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-8, 12-19, 22, 23, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 6-8, 14-19, 22 and 23 is/are allowed.
- 6) ☒ Claim(s) 4, 5, 12, 13, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed January 6, 2005 and claims 4-8, 12-19, 22, and 23 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4, 5, 12, and 13 are rejected under 35 USC 103 (a) as being unpatentable over US Patent # 6,573,882 ("Takabayashi").

As to claim 4, Takabayashi teaches a liquid crystal device Fig.4 (3) corresponding to a display panel; a light source Fig.4 (1) corresponding to a light-source for illumination to said display panel, and a switching means Fig.4 (2) corresponding to a controlling circuit for controlling light-emission luminance of said light source; referring to Fig.3 diagram, the lighting periods t1, t2 and t3 in the respective sub-fields t1, t2 and t3 in the respective sub-fields SF1, SF2 and SF3 were each set to occupy 75 % of an associated sub-field period in view of the effects of suppressing the blurring and color splitting in a hold-type display device. This value can be modified based on consideration of other factors. For example, the value can be

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varied for providing different luminances of respective color picture data to adjust a chromaticity of mixed colors (column 5, lines 11-20). The prior art does not explicitly teaches said time having said 1st light-emission luminance is longer than said time having said 2nd light-emission luminance, said controlling circuit controlling said time ratio of said 1st light-emission luminance in said one period to be 50% or smaller when said display data is a motion frame picture and to be 50% or larger when said display data is a freeze-frame picture. However, the prior art teaches the preparation of new picture data to be inserted still involves a problem that the complication of circuit is inevitable. The liquid crystal device 3 is driven for switching in the sub-fields SF1 to SF3 based on the corresponding picture data S1 to S3. In synchronism with the switching by the liquid crystal device 3, the light source 1 is turned on and off. By turning on the light source 1, the liquid crystal device 3 is illuminated with red light (R) in the first sub-field SF1, green light (G) in the second sub-field SF2, and blue light (B) in the third field SF3. Herein, red (R), green (G) and blue (B) are three primary colors of light. It would have been obvious to a person of ordinary skill in the art to modify said time having said 1st light-emission luminance is longer than said time having said 2nd light-emission luminance, said controlling circuit controlling said time ratio of said 1st light-emission luminance in said one period to be 50% or smaller when said display data is a motion frame picture and to be 50% or larger when said display data is a freeze-frame picture to achieve the preparation of new picture data to be inserted still involves a problem that the complication of circuit is inevitable. The liquid crystal device 3 is driven for switching in the sub-fields SF1 to SF3 based on the

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corresponding picture data S1 to S3. In synchronism with the switching by the liquid crystal device 3, the light source 1 is turned on and off. By turning on the light source 1, the liquid crystal device 3 is illuminated with red light (R) in the first sub-field SF1, green light (G) in the second sub-field SF2, and blue light (B) in the third field SF3. Herein, red (R), green (G) and blue (B) are three primary colors of light.

As to claims 5, Takabayashi teaches Fig.1 (a) where the light-emission blue color is equal to substantially 0.

As to claim 12, Takabayashi teaches a liquid crystal device Fig.4 (3) corresponding to a display panel; a light source Fig.4 (1) corresponding to a light-source for illumination to said display panel, and a switching means Fig.4 (2) corresponding to a controlling circuit for controlling light-emission luminance of said light source; referring to Fig.3 diagram, the lighting periods t1, t2 and t3 in the respective sub-fields t1, t2 and t3 in the respective sub-fields SF1, SF2 and SF3 were each set to occupy 75 % of an associated sub-field period in view of the effects of suppressing the blurring and color splitting in a hold-type display device. This value can be modified based on consideration of other factors. For example, the value can be varied for providing different luminances of respective color picture data to adjust a chromaticity of mixed colors (column 5, lines 11-20) corresponding to wherein said time having said 1st light-emission luminance is longer than said time having said 2nd light-emission luminance, said controlling circuit controlling said time ratio of said 1st light-emission luminance in said one period to be 50% or smaller when said display data is

a motion frame picture and to be 50% or larger when said display data is a freeze-frame picture.

As to claims 13, Takabayashi teaches Fig.1 (a) where the light-emission blue color is equal to substantially 0.

As for claim 26, Takabayashi teaches a switching means Figure 4 which the liquid crystal device 3 is illuminated sequentially (in time division) with respective color lights of R, G and B from the light source 1 while effecting light switching by the liquid crystal device 3 in synchronism with the respective color light illumination under control by the picture switching means 2 (column 1, lines 34-39) where the proposals (iv) and (v) using non-chromatic picture data or white picture data are advantageous in that they are applicable to processing of high-speed motion picture without causing flicker and without utilizing a special scanning scheme. However, the preparation of new picture data to be inserted still involves a problem that the complication of circuit is inevitable.

As to claim 27, Takabayashi teaches a liquid crystal device Fig.4 (3) corresponding to a display panel; a light source Fig.4 (1) corresponding to a light-source for illumination to said display panel, and a switching means Fig.4 (2) corresponding to a controlling circuit for controlling light-emission luminance of said light source; referring to Fig.3 diagram, the lighting periods t1, t2 and t3 in the respective sub-fields t1, t2 and t3 in the respective sub-fields SF1, SF2 and SF3 were each set to occupy 75 % of an associated sub-field period in view of the effects of suppressing the blurring and color splitting in a hold-type display device. This value can

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be modified based on consideration of other factors. For example, the value can be varied for providing different luminances of respective color picture data to adjust a chromaticity of mixed colors (column 5, lines 11-20) corresponding to wherein said time having said 1st light-emission luminance is longer than said time having said 2nd light-emission luminance, said controlling circuit controlling said time ratio of said 1st light-emission luminance in said one period to be 50% or smaller when said display data is a motion frame picture and to be 50% or larger when said display data is a freeze-frame picture.

Allowable Subject Matter

3. Claims 6-8, 14-19, 22, and 23 are allowed.
4. The following is a statement of reasons for the indication of allowable subject matter: the claimed invention is directed to a display apparatus for executing a display corresponding to display data to be inputted from the outside. Independent claim 6 identifies a uniquely distinct feature "a controlling circuit for controlling light-emission luminance of said light-source irrespective of red, green and blue data of said display data, said controlling circuit switching said light-source between a 1st light-emission luminance and 2nd light emission luminance during one period for updating said display data to said display, and said controlling circuit changing a time ratio of said 1st light-emission luminance and that of said 2nd light-emission luminance during said one period in accordance with said display data, wherein said controlling circuit comprises: a data storing unit for storing said display data by the amount of at least 1 frame, a data

comparing unit for comparing corresponding pixels between said display data stored in said data storing unit and said display data to be inputted, and a pulse controlling unit for outputting a signal in correspondence with a comparison result by said data comparing unit, said signal controlling said time ratio of said 1st light-emission luminance in said one period". Independent claim 14 identifies a uniquely distinct feature "a luminance distribution detection controlling circuit for detecting, in accordance with said image data to be inputted, luminance distribution data by the amount of at least 1 frame of said image data, and a tone controlling circuit for updating a set value in at least 1 specified tone position in accordance with said luminance distribution data, and for determining a tone characteristic between said updated respective set values on a 1-frame basis with the use of a predetermined arithmetic-calculation formula". Independent claim 14 identifies a uniquely distinct feature "a luminance distribution detection controlling circuit for detecting, in accordance with said image data to be inputted, luminance distribution data by the amount of at least 1 frame of said image data, and a light-source controlling circuit for controlling at least either of a light emission time-period and a light-emission time of said light-source in accordance with said luminance distribution data".

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kitada teaches a light emission driver control step of controlling light emission driver designed for driving corresponding groups of LEDs incorporated in the dot-matrix type LED display device on the basis of a portion of the input display data read out by the display data read-out unit. A liquid crystal device is sequentially

illuminated with three primary color lights in three primary color illumination steps including an off period (1) before, (2) before and after and (3) after the primary color light period, respectively. The closest art, Kitada and Takabayashi as discussed above, either singularly or in combination, fail to anticipate or render obvious the above limitations obvious.

Response to Amendment

5. Applicant's arguments filed January 6, 2005 have been fully considered but they are not persuasive. The applicant argued that the prior art, Takebayashi, does not disclose or teach in the sense of 35 USC 103 the recited features of claim 4 in terms of operation of the controlling circuit in a different manner when the display data is a motion-frame picture and when the display data is a freeze-frame picture. Examiner disagrees with the applicant because the prior art teaches a switching means Figure 4 which the liquid crystal device 3 is illuminated sequentially (in time division) with respective color lights of R, G and B from the light source 1 while effecting light switching by the liquid crystal device 3 in synchronism with the respective color light illumination under control by the picture switching means 2 (column 1, lines 34-39) where the proposals (iv) and (v) using non-chromatic picture data or white picture data are advantageous in that they are applicable to processing of high-speed motion picture without causing flicker and without utilizing a special scanning scheme. However, the preparation of new picture data to be inserted still involves a problem that

the complication of circuit is inevitable. The liquid crystal device 3 is driven for switching in the sub-fields SF1 to SF3 based on the corresponding picture data S1 to S3. In synchronism with the switching by the liquid crystal device 3, the light source 1 is turned on and off. By turning on the light source 1, the liquid crystal device 3 is illuminated with red light (R) in the first sub-field SF1, green light (G) in the second sub-field SF2, and blue light (B) in the third field SF3. Herein, red (R), green (G) and blue (B) are three primary colors of light. Therefore, the rejection is maintained.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (571) 272-7692. The examiner can normally be reached on from Monday to Friday between 10:00AM and 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard, can be reached on (571) 272-7603.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121
Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

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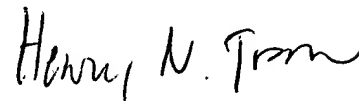
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jean Lesperance



Date 5/23/2005

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HENRY N. TRAN
PRIMARY EXAMINER